

MINUTES OF DOT-AGC BRIDGE DESIGN SUBCOMMITTEE MEETING

The DOT-AGC Joint Bridge Design Subcommittee met on August 10th, 2005. Those in attendance were:

Berry Jenkins	Manager of Highway Heavy Division, Carolinas Branch AGC (Co-Chairman)
Greg Perfetti	State Bridge Design Engineer (Co-Chairman)
Richard Holshouser	Sanford Contractors, Inc.
Mark Lively	Crowder Construction
Chris Britton	Taylor & Murphy Construction Co.
Ron Hancock	State Bridge Construction Engineer
Tom Koch	Structure Design Project Engineer
Paul Lambert	Structure Design Engineer
Steve Walton	Materials and Tests – Metals Engineer
David Greene	Materials and Tests – Structural Members Engineer
Jeff Vones	Structure Design Engineer
Gichuru Muchane	Structure Design Engineer

During the review of the June 8th, 2005 meeting minutes, the following items were discussed:

1. *Revisions to Standard Specifications – Sections 450 & 452*

Mr. Greene clarified that the Structure Design Unit would approve pile points and the Materials and Tests Unit would maintain a list of approved pile points. He added that the list has been created and now needs to be populated. *Structure Design stated that they would send a list of pile points that have been reviewed and approved.*

2. *Field Painting Girders*

Mr. Perfetti stated that the revisions to the Standard Specifications are in progress. He sought feedback from the contractors on the proposal to allow shop painted girders. Under current practice, girders receive a coat of shop applied inorganic zinc primer, followed by a couple of field applied acrylic top coats. The proposed changes would require shop applied primer with an option to apply the acrylic in the shop or field. All damage during handling will be field repaired and an appearance coat will be required for the exterior girders of bridges over traffic and for other highly visible areas.

Mr. Holshouser stated that field painting, especially over water, raises environmental issues due to the overspray. For this reason, shop painting is preferable. Other contractors concurred.

The minutes of the June 8th, 2005 meeting were approved.

The following items of new business were discussed:

1. *Steel Diaphragms for Concrete Girders*

Mr. Koch distributed and briefly discussed a draft standard drawing of steel diaphragms for AASHTO girders Types II - IV. He added that standardized drawings for Bulb-Tee shapes were under development. He requested contractors review the drawings and provide feedback as soon as possible. Mr. Koch noted that:

- Drilling bolt holes through the girder will not be permitted, and
- Shop drawings submittals will be required.

- A timber strut in the vicinity of the diaphragm will be required in the exterior bays only.

Mr. Walton suggested allowing the option to metallize the diaphragms in lieu of galvanizing. He also noted that with such few bolts on the diaphragms, the Materials and Tests Unit would have to work out new guidelines for sampling bolts for testing.

Mr. Lambert inquired if the 3/16" slots were sufficient for fit-up. The contractors thought that the slots shown would be adequate.

Mr. Britton inquired if the steel diaphragms will be a separated pay item. Mr. Perfetti responded by stating that the cost of the diaphragm will be incidental to the cost of the girders.

2. *Approach Slab Lengths*

Mr. Koch distributed and discussed a flow chart that will be used to determine bridge approach slab lengths. Mr. Koch noted that:

- Approach slab lengths shall be either 15'-0" or 25'-0" depending on the route the bridge is located on and the traffic volume on the bridge.
- Approach slabs ends shall be formed parallel to the skew when the approaching roadway is flexible pavement, and
- The roadway end of the approach slab shall be formed perpendicular to the skew when the approaching roadway is rigid pavement.

Mr. Koch also noted that the Department anticipated 65% of the bridges to have the 15'-0" approach slabs.

Contractors were in favor of the parallel ends on the approach slabs. Mr. Lively inquired if the change could be implemented on projects that have already been let. Mr. Hancock responded that projects that meet the current guidelines will be considered but the Department will request a credit for the reduced work.

3. *Concrete Overlays*

Mr. Koch distributed and briefly discussed a flow chart that will be used to determine the overlay type on cored slab and box beam bridges. He noted that the concrete overlays will be placed on bridges that satisfy at least one of the following criteria:

- Bridges on NHS routes
- Bridges with design year ADT greater than 5,000
- Bridges with design year TTST greater than 100
- Low water bridges located in Divisions 11-14

Structure design anticipated that 33% of the cored slab and box beam bridges will have a concrete overlay, which will:

- Provide improved girder protection from moisture and deicing solutions, and
- Provide a more durable riding/wearing surface.

Mr. Koch noted that in situations where an asphalt overlay is used, the Department will provide improved drainage to more rapidly remove moisture from the bridge. To this end, Structure Design is developing details for alternative flat-faced barrier rails that will

accommodate the use of drainage slots, which are hydraulically more efficient than the 4"Ø PVC pipes.

4. *Connecticut Guardrail Anchor Unit Type B-77*

Mr. Koch distributed a standard drawing of the Connecticut Guardrail Anchor Unit Type B-77. Mr. Perfetti stated that there is a Roadway Design Unit initiative to implement this guardrail anchor unit for use on North Carolina bridges. Mr. Koch requested feedback on the details of the anchor unit from contractors. A question was raised as to whether the offset blocks depicted are standard sizes.

During the discussion of the anchor units there were some concerns over the ability to bend the nested guardrail as shown on the drawing. Other concerns expressed were on the ease of maintenance and repair. It was recognized that the Bridge Maintenance Unit should review the details and comment on maintenance concerns, and a trial installation should proceed prior to implementation.

5. *Special Provision for Crane Safety*

Mr. Hancock distributed a revised copy of the Special Provision for Crane Safety. He noted the major revisions as follows:

- Revised situations where a certified crane operator is required from all crane operations to only critical lifts.
- Defined critical lifts.
- Revised effective date for crane operator certification from January 1, 2006 to July 1, 2006.
- Revised medical requirement from CCO medical evaluation to CDL medical card.
- The Special Provision will be effective with the October 2005 letting and will be implemented for all projects that included a previous version of the Special Provision.

Mr. Jenkins expressed the contractors' appreciation to the Department for addressing their concerns and comments on the Special Provision.

6. *Welder Certification*

Mr. Walton stated that The Materials and Tests Unit (M&T) had completed a review of the Field Welder certification requirements for NCDOT projects. He gave a presentation on the following:

- An overview of the current program
- Weaknesses in the current testing process
- Efforts to strengthen the certification program
- An overview of the proposed changes

The proposed changes will require field welders to be certified by a new NCDOT Field Welder program, which will be administered by M&T at a nominal fee.

Mr. Jenkins inquired how contractors would be informed of the new requirements, and the effects of the new program on private certification businesses. Mr. Walton responded by stating a notice would be sent out with an upcoming invitation to bid. He added that the

NCDOT program would have no effect on the certification programs offered by others because the DOT certification is only valid for NCDOT projects and is not a substitute for the AWS Welder Certification.

Mr. Walton and Mr. Greene invited the committee members to view the NCDOT truck that has been fitted with welding equipment and supplies for use in the new certification program.

7. *Other*

- i. Mr. Britton inquired if plans should show the length of the impervious geo-membrane under the reinforced approach fill for cored slab bridges. Mr. Hancock stated that the standard length was 5'-0" and noted that the standard was not clear and would be adjusted under the next standard revision.
- ii. Mr. Holshouser stated that the bottom of slope protection elevations now shown on the plans have been very useful. He encouraged the Department to keep showing them.
- iii. Mr. Jenkins announced that Mr. Holshouser would be rotating off the AGC-DOT committee and Mr. Erik Frazier of S.T. Wooten Corporation would be rotating on to the committee.

8. *Next Meeting*

The next meeting is scheduled for October 12th, 2005 in the Structure Design Conference Room C.